Claims

1.   Turnbuckle device for mutually clamping two concrete shell elements (35, 36; 48, 49; 61, 62) across a joint (37) covered by the turnbuckle device (10; 60) formed with claws, with the concrete shell elements (35, 36; 48, 49; 61, 62) comprising a frame (31, 32) with longitudinal struts (33; 51) and transverse struts (34; 50; 69),
wherein
the turnbuckle device (10; 60) comprises one or more retaining means (18; 45; 68; 88) for retention on longitudinal or transverse struts (33, 34; 50, 51; 69) of a concrete shell element (35, 36; 48, 49; 61, 62), by which the turnbuckle device (10; 60) can be mounted on the concrete shell element (35, 36; 48, 49; 61, 62) in a way it cannot fall off self-actingly, preferably also in a position in which the turnbuckle device (10; 60) is positioned within an outer edge (39) of the concrete shell element (35, 36; 48, 49; 61, 62) and wherein at least one arresting means (28; 70) is provided, wherein the turnbuckle device (10; 60) can be brought into a tensioning position on the concrete shell element (35, 36; 48, 49; 61, 62) when the arresting means (28; 70) is released or removed,
characterized in that
the turnbuckle device (10; 60) comprises a second lock part (12; 64) which is pivotable relative to a first lock part (11; 63), wherein the first lock part (11; 63) comprises a stationary first claw (14, 15; 43, 44; 83, 84) and the second lock part (12; 64) comprises a second claw (24, 25; 72, 73), with both claws being adjusted to be suitable for direct engagement on the frame (31, 32), wherein the arresting means (28; 70) limits the pivoting range of the second lock part (12) such that the second claw (24, 25; 72, 73) prevents release of the turnbuckle device (10; 60) from the concrete shell element (35, 36; 48, 49; 61, 62) and optionally limits or prevents movability of the turnbuckle device (10; 60) at the frame section (33, 34)

2.   Turnbuckle device according to claim 1, characterized in that the turnbuckle device (10; 60) can be removed from the concrete shell element (35, 36; 48, 49; 61, 62) when the arresting means (28; 70) is released or removed.

3.   Turnbuckle device according to claim 1 or 2, characterized in that the retaining means are archings (18; 45) which protrude locally from the inner surface (16, 17) of the stationary claws (14, 15).

4.   Turnbuckle device according to claim 3, characterized in that the opposite archings (18) are offset from each other, that the distance x between the archings (18) is

larger than the width y of the longitudinal strut (33) or the transverse strut (34) on which the turnbuckle device is to be mounted.

5.   Turnbuckle device according to claim 3, characterized in that the archings (45) are formed oppositely on the inner surfaces (46, 47) of the stationary claws (43, 44).

6.   Turnbuckle device according to claim 1 or 2, characterized in that the retaining means is formed by a shackle (66) which projects from a rod-shaped body (65) which holds and displaceably guides the first lock part (63), and that a mounting means, e.g. a bolt (68) is provided, which can be inserted in a first opening (67) in the shackle (66).

7.   Turnbuckle device according to claim 1 or 2, characterized in that the retaining means is formed by a pivoting and/or tilting lever (88) which is provided on stationary claws (83, 84) or in the region of the stationary claws (83, 84).

8.   Turnbuckle device according to claim 7, characterized in that the pivoting and/or tilting lever (8) is loaded by a spring.

9.   Turnbuckle device according to any one of the claims 1 through 8, characterized in that the arresting means is a wedge (28; 70) which, being displaced in the direction of force of gravity, blocks the pivotable second claw (24, 25; 72, 73) in the pivoted inner position state or clamps the turnbuckle device for mutual clamping of two concrete shell elements, or that the wedge (28; 70), when pivoted against the force of gravity, releases the pivotable second claw (24, 25; 72, 73) for pivoting and displacement with respect to the first stationary claw (14, 15; 43, 44).

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